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29053 7590 01/24/2008 FULBRIGHT & JAWORSKI L.L.P 2200 ROSS AVENUE SUITE 2800 DALLAS, TX 75201-2784			EXAMINER NADKARNI, SARVESH J	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/821,198	<b>Applicant(s)</b> GABRIELSON ET AL.	
	<b>Examiner</b> Sarvesh J. Nadkarni	<b>Art Unit</b> 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) 17, 20, 35-38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16, 18, 19, 21-34 and 39-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                               | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                      | 5) <input type="checkbox"/> Notice of Informal Patent Application                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____  |

### DETAILED ACTION

**This Office Action is in response to the Amendment filed July 19, 2007 and the election/restriction requirement filed October 23, 2007, in relation to Application Number: 10/821,198 (hereinafter referred to as “amendment”). Claims 17, 20, 35-38 have been withdrawn from consideration. Claims 1, 9, 21, 22, 27, and 39 have been amended. No claims have been newly added. Therefore, claims 1-16, 18, 19, 21-34 and 39-44 are currently pending.**

#### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the **second paragraph of 35 U.S.C. 112**:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. **Claims 21 and 23 stand rejected under 35 U.S.C. 112, second paragraph**, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. In **claim 21**, the phrase “user perceives a depth of gray levels beyond what is available in gray scale” is dependant on the subjective perception of the user. Furthermore, the claim does not clearly define the boundaries of “what is available in gray scale” and is not adequately supported in the specification. Therefore, for the two reasons stated above, **claim 21** is rendered indefinite. For purposes of examination, the phrase “user perceives a depth of gray levels beyond what is available in gray scale” is understood to mean any gray scale value. Furthermore, “what is available in gray scale” is understood to mean a gray scale value.

4. In **claim 23**, the phrase “how much brightness” does not adequately quantify brightness. Therefore, for purposes of examination “how much brightness” is reasonably interpreted as meaning visibly bright?

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of **35 U.S.C. 102** that form the basis for the rejections under this section made in this Office Action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. **Claims 1-16, 21-26 and 39-42 are rejected under 35 U.S.C. 102(e) as being anticipated by Martin et. al., United States Patent Number 6,714,206 B1, Date of Patent: March 20, 2004** (hereinafter referred to as “Martin ‘206”). (and as further evidenced by **The Authoritative Dictionary of IEEE Standards Terms, Seventh Edition, pg 330**)

7. With regard to **claim 1**, Martin ‘206 discloses a method for providing pseudo gray levels between gray levels on a display (*Martin ‘206 discloses a method for dithering to improve image quality of displays at but not limited to column 1 lines 27-30. Furthermore, The Authoritative Dictionary of IEEE Standards Terms, Seventh Edition, defines “dithering” (pg 330) as “a technique for displaying an image with many colors or gray levels on a device having fewer colors or gray levels than the image by simulating the colors or gray levels with a group of*

*closely spaced equal-sized dots.” Therefore dithering is a method for providing pseudo gray levels between gray levels on a display.), said method comprising:*

*selecting a gray level of said gray levels for a pixel (Martin ‘206 discloses adjusting the intensity value, which is a drive setting of a pixel at but not limited to column 1, lines 40-45)*

*said gray level having each color drive setting for said pixel being equal; (Martin ‘206 discloses clearing the intensity value matrix at least at FIG. 8 element 803, further described at column 5, lines 27-60); and*

*adjusting one or more of said color drive settings of said pixel to create a pseudo gray level (see Martin ‘206 at but not limited to column 5, lines 27-60 further describing adjustment)*

*wherein said pseudo gray level will be perceived as falling between said gray levels (At column 1 lines 49-53, Martin ‘206 describes the created color as “very similar” but not the same, and hence, “may be perceived as falling between gray levels.”).*

8. With regard to **claim 2**, and as applied to **claim 1**, Martin ‘206 discloses

*said one or more drive settings of said pixel are adjusted by one level (See the explanatory example illustrated at column 1 lines 45-53 describing a single pixel intensity adjusted according to the calculation of the mapping).*

9. With regard to **claim 3**, and as applied to **claim 1**, Martin ‘206 discloses

that there are three drive settings for said pixel (*At column 4, lines 6-10, Martin '206 discloses three drive settings for said pixel, namely, intensity values for each color component, red, green and blue.*).

10. With regard to **claim 4**, and as applied to **claim 3**, Martin '206 discloses  
that one drive setting differs from the other two drive settings by one level  
(*See the explanatory example illustrated at column 1 lines 45-53 describing a single pixel intensity adjusted according to the calculation of the mapping*).
11. With regard to **claim 5**, and as applied to **claim 4**, Martin '206 discloses  
said three drive settings are red, green and blue (*See column 4 lines 6-9 describing a dithering system in which the intensity value for each pixel comprises of the component colors, red, green and blue.*).
12. With regard to **claim 6**, and as applied to **claim 5**, Martin '206 discloses  
said red drive setting is adjusted (*See column 2 lines 25-29 where Martin '206 discloses that red and green values can be set to a different intensity level*).
13. With regard to **claim 7**, and as applied to **claim 5**, Martin '206 discloses  
said green drive setting is adjusted (*See column 2 lines 25-29 where Martin '206 discloses that red and green values can be set to a different intensity level*).
14. With regard to **claim 8**, and as applied to **claim 5**, Martin '206 discloses  
said red drive setting and said green drive setting are adjusted (*See column 2 lines 25-29 where Martin '206 discloses that red and green values can be set to a different intensity level*).

15. With regard to **claim 9**, Martin '206 discloses a method of enhancing gray scale output on a color display, said method comprising:

entering an input number that identifies a level of gray to be displayed;

*(See column 1, lines 36-40, Martin '206 discloses entering an input number identifying an intensity value, i.e. gray scale, such as 32, 33, 34, and 35 into the example illustrated)*

extracting a smaller ranged number from said input number *(see column 1 lines 45-49 wherein Martin '206 extracts the number 8 from the example intensity value of 33.)*,

wherein said smaller ranged number is associated with a true gray value *(the 8 extracted is the displayed intensity value, which is a true gray value)*;

dividing said input number by a factor to obtain a displayable gray scale number *(as described above, see column 1, lines 36-40; the factor is 4 as seen in line 40)*;

and adjusting said displayable gray scale number based on a remainder obtained from said dividing *(see lines 45-49 wherein the remainder obtained from the spatial dithering division calculation is used to adjust the intensity value of a pixel)*.

16. With regard to **claim 10**, and as applied to **claim 9**, Martin '206 discloses

said input number identifies one of 256 gray levels that can be perceived *(see column 1, line 34)*.

17. With regard to **claim 11**, and as applied to **claim 10**, Martin '206 discloses  
  
said smaller range number is associated with one of 64 true gray values  
  
that can be displayed on said color display (*see column 1, line 34-35*).
18. With regard to **claim 12**, and as applied to **claim 10**, Martin '206 discloses that  
  
said factor is 4 (*see column 1, line 40*).
19. With regard to **claim 13**, and as applied to **claim 9**, Martin '206 discloses that  
  
said remainder indicates how much brightness is needed for said  
  
displayable gray scale number (*see column 1, lines 40-52, which describes the  
function of the remainder in adjusting the pixels for display purposes*).
20. With regard to **claim 14**, and as applied to **claim 9**, Martin '206 discloses  
  
outputting said true gray value if said remainder is zero (*See column 8,  
lines 26-29 describing outputting the intensity value because the intensity value  
need not be adjusted; Furthermore, Martin '206 clearly states that various  
modifications may be made to the embodiments of his disclosure and invention at  
column 8 lines 55-67. Therefore, the disclosure clearly shows that a zero  
remainder would result in not adjusting the resulting intensity value.*).
21. With regard to **claim 15**, and as applied to **claim 9**, Martin '206 discloses  
  
increasing red, green or blue outputs associated with said displayable gray  
  
scale number if said remainder is not zero (*see column 1, lines 40-52 for  
application of remainder to display outputs*).
22. With regard to **claim 16**, and as applied to **claim 15**, Martin '206 discloses



adjusting said red output by one if said remainder is one (*see column 1, lines 40-52 for application of remainder to display outputs as further illustrated with the example in column 1, lines 35-52*).

23. Claim 17 has been withdrawn from consideration.

24. With regard to **claim 21**, Martin '206 discloses

capturing an image to be represented as multiple shades of gray (*Martin '206 discusses captured images referred to as "frames" that are processed by spatial dithering at but not limited to column 1, lines 28-53, and as further discussed throughout the patent.*); and

mapping said multiple shades of gray of said image to provide a depth of gray levels for a pixel beyond what is available in gray scale on said color display (*At column 1 lines 49-53, Martin '206 describes the color produced from spatial dithering as "very similar" but not the same, and hence, "gray level" is visible*).

25. With regard to **claim 22**, and as applied to **claim 21**, Martin '206 discloses

said multiple shades of gray are mapped to both gray scale levels supported by said color display and color pixels determined to provide levels of gray between said gray scale levels (*See column 1 lines 40-53 and see argument above in paragraph 27; furthermore the 'color pixels' are introduced in column 1, lines 10-15*).

26. With regard to **claim 23**, and as applied to **claim 22**, Martin '206 discloses

adjusting said color pixels based on how much brightness is needed for display (*Martin '206 discloses adjusting the three drive settings of red, green and*

*blue as needed to improve visible image quality at column 1, lines 45-52, and as evidenced further by column 2 lines 26-29, and at column 6, lines 7-11.)*

27. With regard to **claim 24**, and as applied to **claim 23**, Martin '206 discloses

*said color pixels are represented by three drive settings (At column 4, lines 6-10, Martin '206 discloses three drive settings for said pixel, namely, intensity values for each color component, red, green and blue.).*

28. With regard to **claim 25**, and as applied to **claim 24**, Martin '206 discloses that

*said three drive settings are red, green and blue (See argument in paragraph 31 above.).*

29. With regard to **claim 26**, and as applied to **claim 25**, Martin '206 discloses

*adjusting said three drive settings based on the level of brightness needed for display (Martin '206 discloses adjusting the three drive settings of red, green and blue as needed to improve visible image quality at column 1, lines 45-52, and as evidenced further by column 2 lines 26-29, and at column 6, lines 7-11).*

30. With regard to **claim 39**, Martin '206 discloses a method of enhancing gray scale output on a color display, said method comprising:

*selecting an 8-bit number that identifies a gray level to be displayed (In column 1, lines 36-37, Martin '206 discloses selecting 8-bit intensity values);*

*extracting an upper 6 bits of said 8-bit number (In column 1, lines 30-32, Martin '206 discloses "mapping intensity values of a higher depth (8 bits per sub-pixel) to intensity values of a lower depth (e.g., 6 bits per sub-pixel. ")*

wherein said upper 6 bits are associated with a gray value (*Martin '206 discloses a method of spatial dithering which associates the 6 bit value to an intensity value*)

dividing said 8-bit number by 4 to obtain a displayable gray scale number (*See Martin '206 at column 1, lines 37-40 which describes the mapping process and division by 4*);

and adjusting said displayable gray scale number based on a remainder obtained from said dividing (*See Martin '206 at column 1, lines 45-53 describing the remainder obtained from the division and applying the remainder to adjust the intensity value or gray scale*).

31. With regard to **claim 40**, and as applied to **claim 39**, Martin '206 discloses

outputting said gray value if said remainder is zero (*See column 8, lines 26-29 describing outputting the intensity value because the intensity value need not be adjusted; Furthermore, Martin '206 clearly states that various modifications may be made to the embodiments of his disclosure and invention at column 8 lines 55-67. Therefore, the disclosure clearly shows that a zero remainder would result in not adjusting the resulting intensity value.*)

32. With regard to **claim 41**, and as applied to **claim 39**, Martin '206 discloses

increasing red and green outputs associated with said displayable gray scale number if said remainder is not zero (*See column 2 lines 25-29 where Martin '206 discloses that red and green values can be set to a different intensity level*).

33. With regard to **claim 42**, and as applied to **claim 41**, Martin '206 discloses
- increasing said red output by one if said remainder is one (*see column 1, lines 40-52 for application of remainder to display outputs as further illustrated with the example in column 1, lines 35-52*).

***Claim Rejections - 35 USC § 103***

34. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

35. **Claims 18-20, 43 and 44** are rejected under 35 U.S.C. 103(a) as being unpatentable over Martin '206.

36. With regard to **claim 18**, and as applied to **claim 15**, Martin '206 fails to specifically disclose adjusting said green output by one if said remainder is two. However, Martin '206 discloses that the remainder will range between "0 and 3" and this remainder "represents a loss of image quality" (*See column 1, lines 39-42*). Furthermore, Martin '206 discloses that the "image quality can be improved by independently setting each red and green pixel" (*See column 2, lines 25-29*). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to have been motivated to make the obvious variation of incrementing said green output by one if the remainder is two because it would serve to improve the image quality.

37. With regard to **claim 19**, and as applied to **claim 16**, Martin '206 fails to disclose adjusting said red and green outputs by one if said remainder is three. *(See argument above in paragraph 41. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have been motivated to make the obvious variation of incrementing said red and green outputs by one if the remainder is three because it would serve to improve the image quality.)*

38. Claim 20 has been withdrawn from consideration.

39. With regard to **claim 43**, and as applied to **claim 41**, Martin '206 fails to disclose increasing said green output by one if said remainder is two. However, Martin '206 discloses that the remainder will range between "0 and 3" and this remainder "represents a loss of image quality" *(See column 1, lines 39-42)*. Furthermore, Martin '206 discloses that the "image quality can be improved by independently setting each red and green pixel" *(See column 2, lines 25-29)*. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to have been motivated to make the obvious variation of incrementing said green output by one if the remainder is two because it would serve to improve the image quality.

40. With regard to **claim 44**, and as applied to **claim 41**, Martin '206 fails to disclose increasing said red and green outputs by one if remainder is three. *(See argument above in paragraph 43. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to have been motivated to make the obvious variation of incrementing said red and green outputs by one if the remainder is three because it would serve to improve the image quality.)*

41. **Claims 27-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martin '206 and further in view of Rozzi, United States Patent Application Publication Number 2002/0180751 A1, Date of Publication: December 5, 2002, (hereinafter referred to as "Rozzi").**

42. With regard to **claim 27**, Martin '206 teaches

A system for enhancing gray scale output on a color display (*see Martin '206 at column 1 lines 10-25*), said system comprising:

extracting a smaller ranged number from said input number, (*see column 1 lines 45-49 wherein Martin '206 extracts the number 8 from the example intensity value of 33.*)

dividing said input number by a factor to obtain a displayable gray scale number (*as described above, see Martin '206 column 1, lines 36-40; the factor is 4 as seen in line 40*), and

adjusting color outputs based on a remainder obtained from said dividing; (*see lines 45-49 wherein the remainder obtained from the spatial dithering division calculation is used to adjust the intensity value of a pixel*); and

a color display for receiving said adjusted color outputs from said FPGA (*See Martin '206 column 1, lines 40-55 wherein the newly set intensity values for pixels are visible to the eye on a display*).

43. However, Martin '206 fails to teach a field programmable gate array (FPGA) for generating an input number of **claim 27**.

44. Rozzi clearly teaches the application of a field programmable gate array (FPGA) in conjunction with a display device to process “color data to facilitate accurate color rendering on the display device.”

45. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to have been motivated to incorporate the FPGA of Rozzi into the system of Martin ‘206 because an FPGA processor increases the “speed, accuracy, functionality and/or flexibility of color rendering on the display device.” (See Rozzi page 2, paragraph [0032]).

46. With regard to **claim 28**, and as applied to **claim 27**, Martin ‘206 discloses

said input number identifies a pseudo gray level to be displayed (*See argument above in paragraph 8; furthermore the input number 33 as described in the example in column 1 lines 36-40 is a pseudo gray level being mapped*).

47. With regard to **claim 29**, and as applied to **claim 27**, Martin ‘206 discloses

said smaller ranged number is associated with a true gray value that can be displayed (*the 8 extracted is the displayed intensity value, which is a true gray value*).

48. With regard to **claim 30**, and as applied to **claim 29**, Martin ‘206 discloses

said true gray value is displayed if said remainder is zero (*See column 8, lines 26-29 describing outputting the intensity value because the intensity value need not be adjusted; Furthermore, Martin ‘206 clearly states that various modifications may be made to the embodiments of his disclosure and invention at*

*column 8 lines 55-67. Therefore, the disclosure clearly shows that a zero remainder would result in not adjusting the resulting intensity value.).*

49. With regard to **claim 31**, and as applied to **claim 30**, Martin '206 discloses

said color outputs to be adjusted are associated with a red part and a green part of a pixel (*See Martin '206 column 2 lines 26-29 describing adjusting red and green pixels to improve image quality*).

50. With regard to **claim 32**, and as applied to **claim 30**, Martin '206 fails to disclose that said FPGA adjusts said color output associated with a red part of a pixel by one if said remainder is one. However, Martin '206 discloses that the remainder will range between "0 and 3" and this remainder "represents a loss of image quality" (*See column 1, lines 39-42*). Furthermore, Martin '206 discloses that the "image quality can be improved by independently setting each red and green pixel" (*See column 2, lines 25-29*). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to have been motivated to make the obvious variation of incrementing said red output by one if the remainder is one because it would serve to improve the image quality.

51. With regard to **claim 33**, and as applied to **claim 30**, Martin '206 fails to disclose that said FPGA adjusts said color outputs associated with a red part and green part of a pixel by one if said remainder is three (*See argument above in paragraph 54. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have been motivated to make the obvious variation of incrementing said red and green outputs by one if the remainder is three because it would serve to improve the image quality.*).



52. With regard to **claim 34**, and as applied to **claim 30**, Martin '206 fails to disclose that said FPGA adjusts said color output associated with a green part of a pixel by one if said remainder is two. *(See argument above in paragraph 54. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have been motivated to make the obvious variation of incrementing said green output by one if the remainder is two because it would serve to improve the image quality.)*

53. Claims 35-38 have been withdrawn from consideration.

#### ***Response to Arguments***

54. Applicant's arguments filed July 19, 2007 have been fully considered but they are not persuasive.

55. Regarding claims 21, rejected under **35 U.S.C. 112 second paragraph**, in reference to the phrase "gray levels beyond what is available in gray scale" Applicant argues "[a]ccording to M.P.E.P. [section] 2106(V)(A), an application complies with 35 U.S.C. [section] 112 if it would reasonably apprise a person of ordinary skill in the art of the invention" and further references various sections in the originally filed specification which allegedly describe "beyond what is available in gray scale" [see amendment page 8]. Examiner respectfully disagrees. With regard to M.P.E.P. [section] 2106(V)(A) makes reference to M.P.E.P. [section] 2173 which discusses matters pertaining to the second paragraph 35 U.S.C. 112 requirement. Under MPEP [section] 2173.02, "[t]he essential inquiry pertaining to this requirement is whether the claims set out and circumscribe a particular subject matter with a reasonable degree of clarity and particularity. Definiteness of claim language must be analyzed, not in a vacuum, but in light of (A) the content

of the particular application disclosure; (B) the teaching of the prior art; and (C) the claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art that the time the invention was made.” In light of the (A)-(C), a reasonable interpretation of “beyond what is available in gray scale” is the open set of infinite values of gray scale which may or may not exist. Furthermore, the various sections of the specification referenced by Applicant provide no further explanation of “beyond what is available in gray scale”. These sections specifically illustrate ways of determining what is in gray scale, not “beyond what is available in gray scale”. Therefore, claim 21 stands rejected under 35 U.S.C. 112 second paragraph.

56. Regarding claims 23, rejected under **35 U.S.C. 112 second paragraph**, in reference to the phrase “how much brightness” Applicant argues “[a]ccording to MPEP [section] 2173.05(b), the acceptability of the claim language depends on whether one of ordinary skill in the art would understand what ‘how much brightness’ means. Furthermore, Applicant states “a person of ordinary skill in the art would understand what ‘how much brightness’ means” and references page 7, paragraph 25 for explanation of the phrase. Examiner respectfully disagrees. According to MPEP [section] 2173.05(b), “reference to an object that is variable may render a claim indefinite”. In claim 23, brightness is modified by "how much [brightness] is needed" rendering brightness variable to the subjective elements, quantity (“how much”) and necessity (“is needed”) without providing adequate limitations to either. The phrase does not adequately describe to one having ordinary skill in the art what is meant by “how much brightness”. Therefore, claim 23 is indefinite. Furthermore, Applicant asserts page 7, paragraph 25 of the specification provides further support of “how much brightness”. On page 7, paragraph 25 of the

specification as originally filed, applicant clearly maintains subjectivity of brightness by referencing its quantity in terms of “desire” and adjusting brightness through various modifications (see specification page 7, paragraph [0025]). Page 7, paragraph 25 does not provide a person having ordinary skill in the art to understand what “how much brightness” means. Therefore, claim 23 stands rejected under 35 U.S.C. 112 second paragraph.

57. Claim 1, as amended, stands rejected under 35 USC 102(e). Claim 1, as amended, has been adequately address above and will not be revisited here.

58. Regarding Claims 9 and 39, Applicant asserts "Martin does not teach 'adjusting said display gray scale number based on the remainder obtained from said dividing". Examiner respectfully disagrees. Martin, as reasonably interpreted, clearly teaches "adjusting said display gray scale number based on the remainder obtained from said dividing" at least at column 1, lines 42-49 “where intensity values of the pixels within a superpixel are adjusted based on the remainder value" and provides further explanation of dividing through example therein. Therefore claims 9 and 39 stand rejected under 35 USC 102(e).

59. Regarding claim 21, Applicant asserts “[t]he techniques that Martin teaches do not “provide a depth of gray levels for a underline beyond what is available in gray scale”. Examiner respectfully disagrees. In view of the rejection of claim 21, under 35 USC [section] 112 above, Martin clearly teaches “depth of gray levels beyond what is available in gray scale” at least at column 1, lines 42-53 wherein Martin describes the technique of producing “depth very similar to” what is available (see Martin more specifically at least at column 1, lines 50-53). Therefore claim 21 stands rejected under 35 USC 102(e).

60. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it would be obvious to one having ordinary skill in the art at the time of invention to combine the system of Martin with that of the FPGA of Rozzi for the commonly understood benefits of increasing "speed, accuracy, functionality and/or flexibility of color rendering on the display device." (see Rozzi page 2, paragraph [0032]). Furthermore, it would be an obvious matter of design choice to one having ordinary skill in the art to include the elements as described by Rozzi for the commonly understood benefits stated above while taking into consideration market factors such as cost, application, and consumer benefits. Therefore, there is sufficient motivation to combine the teachings of Martin and Rossi.

61. Regarding claims 18-20, 43 and 44, Applicant asserts Martin does not teach all the limitations of claim 9 and 39. Applicant has adequately addressed claims 9 and 39 above; therefore they will not be revisited here. Therefore these claims stand rejected under 35 USC 103.

62. Regarding claim 27, Applicant asserts that Martin does not teach all the limitations of claim 27 and compares its analysis to claim 9. As applied to claim 27, Martin clearly teaches the allegedly deficient limitation as adequately analyzed with claim 9 above. Therefore, claim 27 and claims 28-38 as dependent on claim 27 stand rejected under 35 USC 103.

*Conclusion*

63. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sarvesh J. Nadkarni whose telephone number is 571-270-1541. The examiner can normally be reached on 11AM-7PM EST Monday - Thursday.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amare Mengistu can be reached on 571-272-7674. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Application/Control Number:  
10/821,198  
Art Unit: 2629

Page 21

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Sarvesh J. Nadkarni  
Examiner – Art Unit 2629

  
AMARE MENGISTU  
SUPERVISORY PATENT EXAMINER